

NOTES ON THE BITING MIDGES OF THE SEYCHELLES
(DIPTERA: CERATOPOGONIDAE)¹

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Abstract.—Seventeen species of Ceratopogonidae collected in the Seychelles Islands are reported, including two new species and two species not previously recorded from the islands. The correct generic placements and some synonymies are listed for the 22 species and five varieties described from the Seychelles by Kieffer in 1911. *Dasyhelea bipunctata* n. sp. and *D. tamsi* n. sp. are described. The list of known Seychelles species now totals 26. The following new synonymy is made: *Bezzia ornatissima* (Kieffer) (syn.: var. *bipunctata* (Kieffer)); *Bezzia rufipes* (Kieffer) (syn.: var. *femoralis* (Kieffer)); *Culicoides leucostictus* Kieffer (syn.: *praetermissus* Carter, Ingram and Macfie, and *distinctipennis* var. *egypti* Macfie); *Dasyhelea aurantiaca* (Kieffer) (syn.: var. *mahensis* (Kieffer)); *Forcipomyia borbonica* Clastrier (syn.: *penniornata* Tokunaga and Murachi, *fuscimaculata* Hardy, *stabilis* Sen and Das Gupta, and *petersoni* (Chan and LeRoux); *Forcipomyia chrysolopha* (Kieffer) (syn.: *ornatipes* (Kieffer), *variegata* Goetghebuer, and *lepidota* Ingram and Macfie); *Forcipomyia psilonota* (Kieffer) (syn.: *aplonota* (Kieffer), *seychelleana* (Kieffer), *seychelleana* var. *fulvithorax* (Kieffer), *indecora* Kieffer, *ingrami* Carter, *egypti* Macfie, *congolensis* Goetghebuer, *flavopilosella* Goetghebuer, *griseipluma* Goetghebuer, *lulengaensis* Goetghebuer, *superata* Goetghebuer, and *griseolella* Goetghebuer); *Nilobezzia scotti* (Kieffer) (syn.: *Probezzia longipennis* (Kieffer)).

We are taking this opportunity to report on two recent collections of Ceratopogonidae made in the Seychelles Islands in the Indian Ocean. Through the courtesy of A. M. Hutson, Richard Lane, and the Trustees of the British Museum (Natural History) we have been able to examine a collection made by W. T. Tams and I. W. Nye in 1965. The junior author made a trip to the Seychelles in May 1972 (with the assistance of British Airways) and collected additional material. We are as a result now able to present an up-to-date list and synonymies of the known Ceratopogonidae of the Seychelles and to present two records from Mauritius.

Kieffer (1911) described 22 species and five varieties of Ceratopogonidae from the material collected in the Seychelles during the Percy Sladen Trust Expedition in 1905. Since that time there have been no records of Ceratopogonidae from the Seychelles until Lambrecht (1970) reported two blood-sucking species, *Leptoconops* (*Styloconops*) *spinosifrons* (Carter) and *Culicoides kusaiensis* Tokunaga. Kieffer's types are in the British Museum

(Natural History) in London where they were examined by the senior author in 1973. We are greatly indebted to Richard Lane and the Trustees of the Museum for allowing us to make further studies and lectotype designations of certain species which are reported here. The correct generic assignments, etc., of Kieffer's species are as follows:

Kieffer, 1911:	Present Assignment:
<i>Ceratopogon:</i>	
<i>trichotomma</i> , p. 332	<i>Atrichopogon</i> , NEW COMBINATION
<i>chrysolophus</i> , p. 333	<i>Forcipomyia</i> , subgenus <i>Lepidohelea</i>
<i>lasionotus</i> , p. 334	synonym of <i>Forcipomyia (Microhelea) fuliginosa</i> (Meigen)
var. <i>callithorax</i> , p. 334	synonym of <i>Forcipomyia (Microhelea) fuliginosa</i> (Meigen)
<i>lampronotus</i> , p. 335	<i>Atrichopogon</i> , NEW COMBINATION
<i>psilonotus</i> , p. 337	<i>Forcipomyia</i> , subgenus <i>Euprojoannisia</i>
<i>aplonotus</i> , p. 337	synonym of <i>Forcipomyia psilonota</i> , NEW SYNONYMY
<i>seychelleanus</i> , p. 338	synonym of <i>Forcipomyia psilonota</i> , NEW SYNONYMY
var. <i>fulvithorax</i> , p. 338	synonym of <i>Forcipomyia psilonota</i> , NEW SYNONYMY
<i>falcinellus</i> , p. 338	<i>Forcipomyia (Thyridomyia)</i>
<i>mahensis</i> , p. 339	<i>Forcipomyia (Lasiohelea)</i>
<i>Culicoides:</i>	
<i>leucostictus</i> , p. 340	<i>Culicoides (Meijerehelea)</i>
<i>seychellensis</i> , p. 341	<i>Dasyhelea</i> , NEW COMBINATION
<i>scotti</i> , p. 341	<i>Dasyhelea</i> , NEW COMBINATION
<i>aurantiacus</i> , p. 342	<i>Dasyhelea</i> , NEW COMBINATION
var. <i>mahensis</i> , p. 342	synonym of <i>Dasyhelea aurantiaca</i> , NEW SYNONYMY
<i>Sphaeromyias:</i>	
<i>hexacantha</i> , p. 343	<i>Hebetula</i>
<i>pulchripennis</i> , p. 344	<i>Monohela</i>
<i>areolaris</i> , p. 345	<i>Stilobezzia</i>
<i>Serromyia:</i>	
<i>festiva</i> , p. 346	<i>Serromyia</i>
<i>Pachyleptus:</i>	
<i>rufipes</i> , p. 347	<i>Bezzia</i>
var. <i>femoralis</i> , p. 347	synonym of <i>Bezzia rufipes</i> , NEW SYNONYMY
<i>Probezzia:</i>	
<i>scotti</i> , p. 348	<i>Nilobezzia</i>
<i>longipennis</i> , p. 349	synonymy of <i>Nilobezzia scotti</i> , NEW SYNONYMY
<i>ornatissima</i> , p. 349	<i>Bezzia</i>
var. <i>bipunctata</i> , p. 350	synonymy of <i>Bezzia ornatissima</i> , NEW SYNONYMY
<i>seychelleana</i> , p. 350	<i>Bezzia</i>

Forcipomyia (Euprojoannisia) psilonota (Kieffer)

Ceratopogon psilonotus Kieffer, 1911:337 (♂; Seychelles; fig. wing).

Forcipomyia psilonota (Kieffer); Ingram and Macfie, 1924:546 (combination; in key).

- Ceratopogon aplonotus* Kieffer, 1911:337 (♀; Seychelles; fig. wing). NEW SYNONYMY.
- Forcipomyia aplonota* (Kieffer); Ingram and Macfie, 1924:543 (combination; in key).
- Ceratopogon seychelleanus* Kieffer, 1911:338 (♀; Seychelles; fig. wing). NEW SYNONYMY.
- Forcipomyia seychelleana* (Kieffer); Ingram and Macfie, 1924:543 (combination; in key).
- Ceratopogon seychelleanus* var. *fulvithorax* Kieffer, 1911:338 (♀; Seychelles). NEW SYNONYMY.
- Forcipomyia seychelleana* var. *fulvithorax* (Kieffer); Ingram and Macfie, 1924:543 (combination; in key).
- Forcipomyia indecora* Kieffer, 1914:269 (♂; South Africa); de Meillon, 1959:327 (redescribed from types; synonym: *ingrami* Carter); Clastrier, 1960:510 (♂ redescribed; fig. genitalia); Dessart, 1961:335 (descriptive notes; synonyms: *ingrami*, *egypti*, *congoensis*, *flavopilosella*, *griseipluma lulengaensis*, *superata*, *griseolella*). NEW SYNONYMY.
- Forcipomyia ingrami* Carter, 1919:290 (all stages; Gold Coast; figs.); Ingram and Macfie, 1924:584 (notes; figs.). NEW SYNONYMY.
- Forcipomyia egypti* Macfie, 1924:61 (♀; Egypt; figs.). NEW SYNONYMY.
- Forcipomyia congolensis* Goetghebuer, 1933:132 (also as *congoensis*, p. 130; ♂; Congo; figs.). NEW SYNONYMY.
- Forcipomyia flavopilosella* Goetghebuer, 1933:135 (also as *flavopilosella*, p. 130; ♀; Congo; fig. wing). NEW SYNONYMY.
- Forcipomyia griseipluma* Goetghebuer, 1935:154 (♂; Congo). NEW SYNONYMY.
- Forcipomyia lulengaensis* Goetghebuer, 1935:155 (♂; Congo; fig. wing). NEW SYNONYMY.
- Forcipomyia superata* Goetghebuer, 1935:160 (♀; Congo; fig. wing). NEW SYNONYMY.
- Forcipomyia griseolella* Goetghebuer, 1948:7 (♀; Congo). NEW SYNONYMY.

Distribution.—SEYCHELLES: Mahé, Anse aux Pins, 24 May 1972, D. H. Messersmith, at light, 1♀. Mahé, Beau Vallon, 27 April, 25 May 1965. Tams and Nye, 2♀♀. Mahé, Cascade, 10 March, 1965. Tams and Nye, 1♀.

Remarks.—Through the courtesy of Mr. Richard Lane and the Trustees of the British Museum (Natural History) we have been able to study the type-series of Kieffer's species *pilonota*, *aplonota*, and *seychelleana*. As LECTOTYPE of *pilonota* we have chosen a male, mounted on a slide. This specimen has the hind tarsal ratio 0.71, well within the range of 0.67–0.93 given by Dessart (1963) in his redescription of *indecora*. The female tarsal ratio of this species varies from 1.1 to 1.3. The genitalia of the lecto-

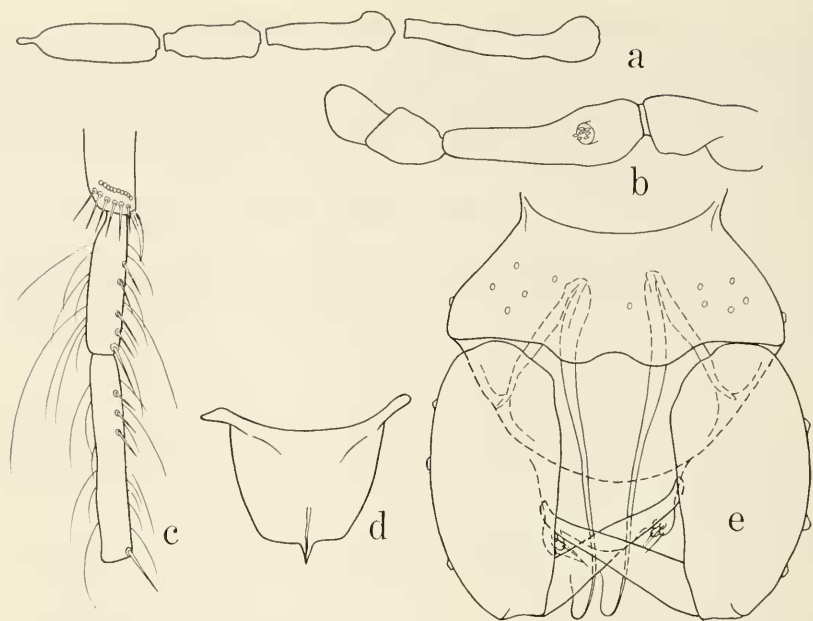


Fig. 1. *Forcipomyia biannulata*, male. a, 4 distal antennal segments. b, palpus. c, tibial comb and proximal 2 tarsomeres of hind leg. d, aedeagus. e, genitalia, aedeagus removed (drawn by M. Griffin).

type are identical with those figured by Carter (1919), Ingram and Macfie (1924), and Clastrier (1960) for *ingrami* and *indecora*. We have no hesitation in completing the synonymy given above for this common and widespread Ethiopian species.

Forcipomyia (Forcipomyia) biannulata Ingram and Macfie
(Fig. 1)

Forcipomyia biannulata Ingram and Macfie, 1924:557 (δ , η ; Gold Coast, Nigeria, Nyasaland; figs.); Clastrier, 1960:515 (descriptive notes; Congo); Dessart, 1961:357 (redescribed; extensive synonymy).

Forcipomyia abonnenci Clastrier, 1959a:340 (δ , η ; Senegal; figs.).

Distribution.—Common and widespread in Ethiopian Region. SEYCHELLES: Mahé, Reef Hotel Golf Course, 22 May 1972, D. H. Messersmith, black light, 1 δ ; 20 May 1972, on person, 1 δ . Mahé, Beau Vallon, 30 March, 25 April, 27 May 1965, Tams and Nye, 3 δ δ , 24 η η . MAURITIUS: Roches Noires, 24 May 1969, C. M. C., 4 η η (BMNH).

Diagnostic Characters.—This species has been well characterized by Ingram and Macfie (1924), Clastrier (1959a, as *abonnenci*), and Dessart (1961). A moderately small species, wing 1.3 mm long; wing dark with

small yellowish spot over end of costa; legs pale, femora with broad distal, and tibiae with broad basal dark bands; mid and hind tibiae of ♀ with hastate spines; hind TR 0.66 (Fig. 1c). Male aedeagus (Fig. 1d) broader than long, shield-shaped with median point; parameres (Fig. 1e) broadly separated at base, no sclerotized basal bridge, distal processes free to base, moderately slender, tapering to a filament.

Forcipomyia (Lasiohelea) mahensis (Kieffer)

Ceratopogon mahensis Kieffer, 1911:339 (♀; Seychelles; fig. tarsus).

Forcipomyia mahensis (Kieffer); Dessart, 1963:88 (combination).

Distribution.—Seychelles Islands. SEYCHELLES: Mahé, Beau Vallon, 8 April 1965, Tams and Nye, 1♀.

Forcipomyia (Lepidohelea) chrysolopha (Kieffer)

(Fig. 2)

Ceratopogon chrysolophus Kieffer, 1911:333 (♂, ♀; Seychelles; fig. wing).

Lepidohelea chrysolopha (Kieffer); Kieffer, 1917:364 (type-species of *Lepidohelea*, new genus).

Forcipomyia chrysolopha (Kieffer); Ingram and Macfie, 1924:542 (combination; in key).

Lepidohelea ornatipes Kieffer, 1921:1 (♂, ♀; Cameroon; fig. ♂ genitalia). NEW SYNONYMY.

Forcipomyia lepidota Ingram and Macfie, 1924:566 (♂, ♀; Gold Coast; figs.); Macfie, 1934:178 (rec. Malaya); Macfie, 1937:73 (rec. Ethiopia); Macfie, 1947:70 (rec. Sudan); de Meillon and Hardy, 1953:29 (Cape Prov.); Clastrier, 1956:606 (redescribed; figs.; Tunisia, Algeria); Clastrier, 1960:513 (Congo); Dessart, 1961:362 (redescribed; figs.; synonyms: *annulator*, *grata*, *guttatella*, *variegata*); Dessart, 1963:82 (redescribed; figs.; synonymy); Clastrier, 1966:694 (Canary Is.). NEW SYNONYMY.

Forcipomyia variegata Goetghebuer, 1933:133 (♀; Congo; fig. wing, leg). NEW SYNONYMY.

Forcipomyia guttatella Goetghebuer, 1935:146 (♀; Congo; fig. wing; also spelled *guttatula*). NEW SYNONYMY.

Forcipomyia grata Goetghebuer, 1935:153 (♂; Congo; fig. wing). NEW SYNONYMY.

Forcipomyia annulator Goetghebuer, 1948:6 (new name for *grata* Goetghebuer 1935, preocc. Macfie, 1934). NEW SYNONYMY.

Distribution.—Widespread in Ethiopian and Oriental Regions. SEYCHELLES: Mahé, Anse aux Pins, 24 May 1972, D. H. Messersmith, at light, 2♂♂. MAURITIUS: Roches Noires, 19 June 1969, C. M. C., 1♀ (BMNH).

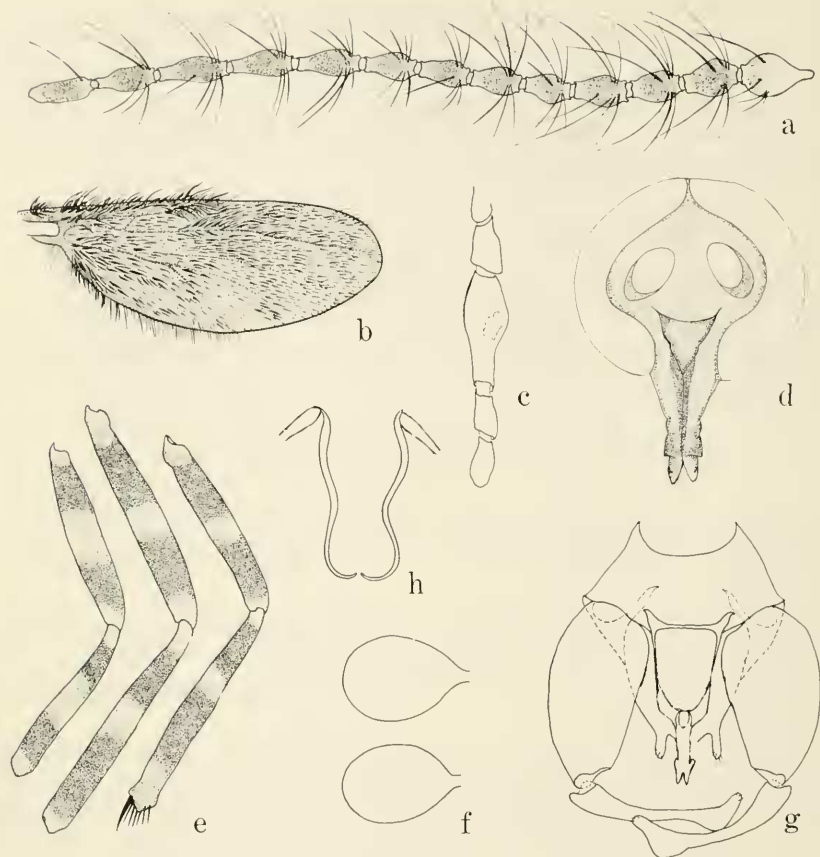


Fig. 2. *Forcipomyia chrysolopha*, a-f, female, g-h, male. a, antenna. b, wing. c, palpus. d, anterior view of head. e, color pattern of femora and tibiae (left to right) of fore, mid, and hind legs. f, spermathecae. g, genitalia. h, parameres (drawn by N. C. Ratanaworabhan).

Diagnostic Characters.—A dark brown species with banded legs (Fig. 2e), readily distinguished from *F. borbonica* by the presence of a median yellowish band on the hind femur, the abundant appressed scales of the body and legs much shorter and broader, and by the more slender third palpal segment (Fig. 2c) with a shallower sensory pit. Hind tarsal ratio of ♀ 0.90, of ♂ 0.82. Male genitalia (Fig. 2g) with dististyle swollen distally with very characteristic, obliquely capitate expansion; aedeagus also with specifically characteristic distal expansion, the basal arch very low, nearly transverse; parameres (Fig. 2h) separate, the long posterior processes tapering to slender, slightly sinuate rods. This species has been very well re-

described and figured by Clastrier (1956) and Dessart (1961) under the synonym *F. lepidota* Ingram and Macfie. This common and widespread species is the type-species of the subgenus *Lepidohelea* Kieffer.

Forcipomyia (Microhelea) fuliginosa (Meigen)

Ceratopogon fuliginosus Meigen, 1818:86 (Europe).

Forcipomyia fuliginosa (Meigen); Goetghebuer, 1933:130 (combination; Congo); Dessart, 1962:67 (synonyms: *lasionotus*, *callithorax*).

Ceratopogon lasionotus Kieffer, 1911:334 (♂, ♀; Seychelles).

Ceratopogon lasionotus var. *callithorax* Kieffer, 1911:335 (♂, ♀; Seychelles).

Distribution.—Cosmopolitan. SEYCHELLES: No locality, February–March 1965, Tams and Nye, 7♂♂, 1♀.

Forcipomyia (Schizoforcipomyia) borbonica Clastrier
(Fig. 3)

Forcipomyia (Lepidohelea) borbonica Clastrier, 1959b:436 (♂; Réunion Id.; fig. genitalia; publ. Sept. 1959).

Forcipomyia (Forcipomyia) penniornata Tokunaga and Murachi, 1959:163 (♂, ♀; Bonin Is., S. Mariana Is., Caroline Is.; figs.; publ. 6 Nov. 1959).
NEW SYNONYMY.

Forcipomyia (Metaforcipomyia) fuscimaculata Hardy, 1960:170 (♂, ♀; Hawaii; figs.). NEW SYNONYMY.

Forcipomyia (Forcipomyia) stabilis Sen and Das Gupta, 1968:95 (♂, ♀; India, West Bengal; figs.). NEW SYNONYMY.

Forcipomyia (Schizoforcipomyia) petersoni Chan and LeRoux, 1971:271 (all stages; Singapore; figs.). NEW SYNONYMY.

Distribution.—Widespread in Old World Tropics. SEYCHELLES: Mahé, Anse aux Pins, 24 May 1972, D. H. Messersmith, at light 3♂♂, 1♀. Mahé, Beau Vallon, 27 April, 25 May 1965, Tams and Nye, 2♀♀.

Diagnostic Characters.—Wing length, ♀ 0.83–0.93 mm; ♂ 1.05–1.40 mm. A dark brown species with broad pale leg bands (Fig. 3f), hind femur entirely dark; wing with indistinct pattern of 4 darker areas on anterior margin caused by clumps of longer scalelike hairs. Female antenna as in Fig. 3a. Palpus (Fig. 3b) 5-segmented, 3rd segment with deep sensory pit opening by a smaller, round pore. Hind tibial comb as in Fig. 3e. Hind tarsal ratio 0.92–0.96 in ♀ (Fig. 3g), 0.68–0.84 in ♂. Two ovoid spermathecae (Fig. 3c) with short, moderately sclerotized necks. Female genital sclerotization as in Fig. 3d. Male genitalia (Fig. 3h) with 9th segment relatively long, sternum with a denser row of hairs in middle of posterior margin; aedeagus in form of a V with a pair of slender, pointed, ventrolaterally directed processes arising from the caudal apex of the V; parameres with

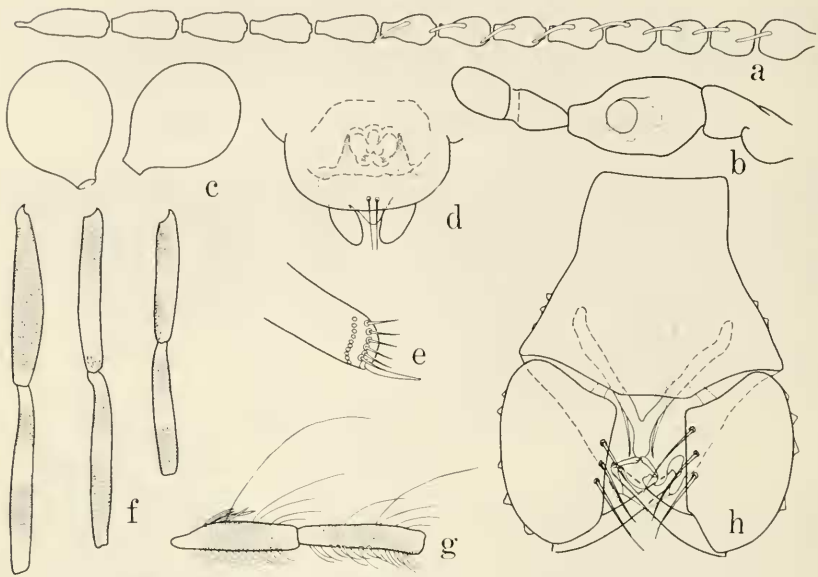


Fig. 3. *Forcipomyia borbonica*, a-f, female, g-h, male. a, antenna. b, palpus. c, spermathecae. d, genital sclerotization. e, hind tibial comb. f, color pattern of femora and tibiae of (left to right) hind, mid, and fore legs. g, proximal 2 tarsomeres of hind legs. h, genitalia (drawn by M. Griffin).

basal apodemes forming a broad, U-shaped arch and bearing a pair of tapering, slender-pointed caudal processes with tips reaching tip of aedeagus; basistyles each with 2-3 long bristle-like hairs on mesal face; dististyle slender, nearly straight with pointed tip. Larva nearly as in *Forcipomyia s. str.*; head hypognathous, *p* and *q* hairs long and slender; anterior and posterior pseudopods bilobed, each lobe with crown of short dark hooks; body chaetae numerous, rather long, *a* hairs spear-shaped but not so rounded as in *Forcipomyia s. str.*; *b* hairs long, thickened basally. Pupa similar to that of *Forcipomyia s. str.*; spiny with many moderately long tubercles, most bearing a short seta at apex; larval exuviae retained on posterior segments; prothoracic respiratory horn short and thumb-shaped, with about 11 spiracular papillae curving around apex and down posterior margin; male sexual processes dorsal.

Discussion.—The new synonymy is based on the excellent and diagnostic figures published by the authors of all the species mentioned, as well as by examination of type or paratype material of *penniornata*, *fuscimaculata*, and *petersoni*. We have also identified a good series of adults of this species from Thailand (Bangkok, Scanlon coll.), Sarawak (Lutong, Colless

coll.), North Borneo (Tambunan, Colless coll.), and Samoa (Tutuila, Pago Pago, Kellen coll.).

Atrichopogon lampronotus (Kieffer), new combination

Ceratopogon lampronotus Kieffer, 1911:335 (♂, ♀; Seychelles; fig. ♀ wing, ♂ genitalia).

Distribution.—Seychelles Islands. SEYCHELLES: Mahé, Anse aux Pins, 24 May 1972, D. H. Messersmith, at light, 2♀♀.

Atrichopogon trichotomma (Kieffer), new combination

Ceratopogon trichotomma Kieffer, 1911:332 (♂, ♀; Seychelles; fig. wings ♂, ♀).

Distribution.—Seychelles Islands. SEYCHELLES: Mahé, Beau Vallon, 27 April, 25 May 1965, Tams and Nye 8♂♂, 19♀♀. Mahé, Mission site, 25 May 1972, D. H. Messersmith, 1♀.

Remarks.—This species is distinguished from *A. lampronotus*, the only other described Seychelles' *Atrichopogon*, by its smaller size (wing 1.5 mm long), shining brownish-black color with yellowish legs, and absence of macrotrichia on the wing membrane.

Genus *Dasyhelea* Kieffer

Kieffer described three species and one variety of *Dasyhelea* from the Seychelles under the genus *Culicoides*. Through the kindness of A. M. Hutson and Richard Lane and the trustees of the British Museum (Natural History) we have been able to study syntypes of Kieffer's species in order better to characterize the species and to select lectotypes.

Dasyhelea seychellensis (Kieffer), new combination
(Fig. 4i, 4j, 4k)

Culicoides seychellensis Kieffer, 1911:341 (♂, ♀; Seychelles).

Types.—Described from two syntypes from Mahé, Seychelles: 1♀, Cascade Estate, about 1,000 feet and over; 1♂, Cascade Estate, about 800–1,500 feet, 1909. We have dissected the genitalia from the ♂ which we hereby designate as LECTOTYPE.

Distribution.—Seychelles Islands. SEYCHELLES: Mahé, Beau Vallon, 12–30 April 1965, Tams and Nye, 4♀♀.

Female.—Wing length 1.07 mm. Costal ratio 0.56. A moderately large dark brown species with bluish-green pollinose thorax; scutellum yellowish. Legs yellowish brown with blackish knee spots and faint, broad, median

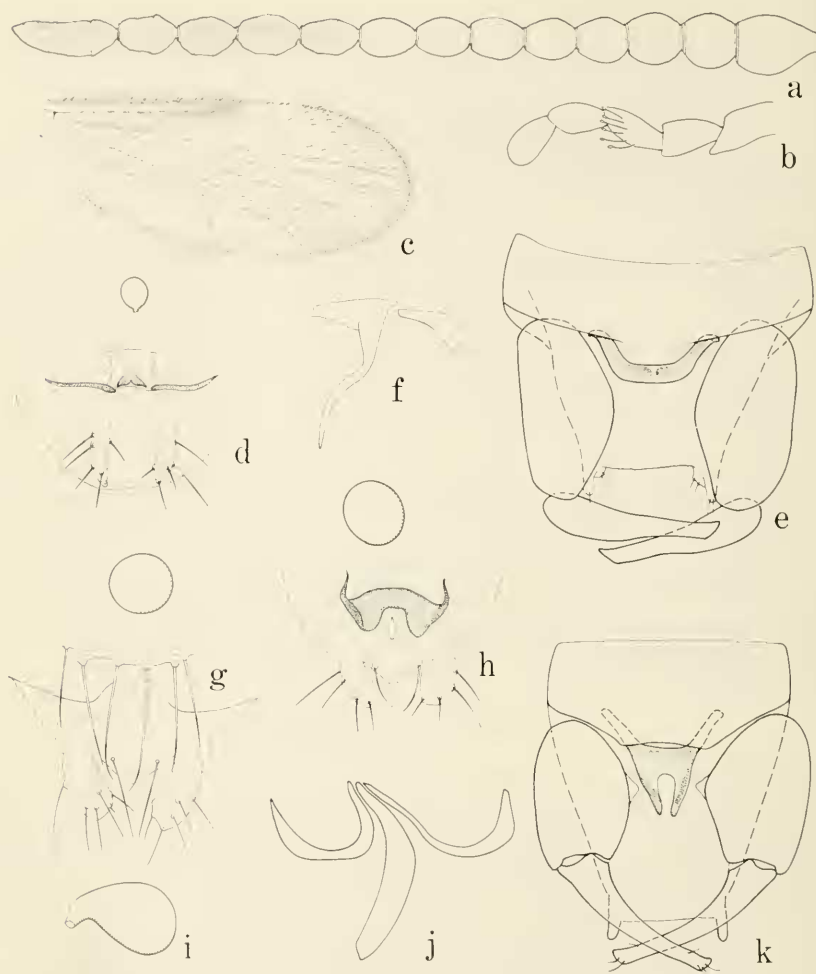


Fig. 4. *Dasyhelea* spp. a-d, *D. tamsi*, female. a, antenna. b, palpus. c, wing. d, genital sclerotization and spermatheca. e-g, *D. bipunctata*. e, male genitalia, parameres removed. f, male parameres. g, female genital sclerotization and spermatheca. h, *D. scotti*, female genital sclerotization and spermatheca. i-k, *D. seychellensis*. i, female spermatheca. j, male parameres. k, male genitalia, parameres removed (drawn by B. Ackerberg).

brownish bands on femora and tibiae. Halter infuscated. Spermatheca (Fig. 4i) retort-shaped with stout, oblique neck; measuring 0.080 by 0.058 mm.

Male Genitalia (Fig. 4k).—Ninth sternum weakly bilobed at base of aedeagus; 9th tergum short and broad, tapering to moderately long,

digitiform, apicolateral processes which are moderately separated with caudal margin weakly convex between them. Basistyle short and stout, mesal process inconspicuous; dististyle unusually long and slender, slightly curved and tapered to slender, slightly hooked tip. Aedeagus of usual form with low basal arch and a submedian pair of moderately long and slender caudal processes. Parameres (Fig. 4j) asymmetrical, basal apodemes long and slender, curved; median caudal process sinuate, slender at base and broadened in midportion, stout distally.

Note.—This species belongs in the large and difficult *fusca* group. Structurally it is very similar to *D. tugelae* de Meillon from South Africa, but *tugelae* is a larger species (wing length 1.4 mm) and the legs are not banded.

Dasyhelea aurantiaca (Kieffer), new combination

Culicoides aurantiacus Kieffer, 1911:342 (♂, ♀; Seychelles).

Culicoides aurantiacus var. *mahensis* Kieffer, 1911:342 (♀; Seychelles).

NEW SYNONYMY.

Distribution.—Seychelles Islands.

Types.—Described from 1♂, 3♀♀ from Mahé, Seychelles, Cascade Estate, about 800–1,500 feet, 1909. Var. *mahensis* described from 2♀♀, same data. We have seen 2 pinned ♀♀ of *aurantiacus* from which we have selected the ♀ bearing the handwritten label "*Culicoides aurantiacus*" as LECTOTYPE. We have seen one pinned ♀ of var. *mahensis* bearing the handwritten label "*Culicoides aurantiacus* var." which we have labeled as LECTOTYPE.

Note.—This species is a tiny polished reddish-yellow species with blackish abdominal terga. In the lectotype of *aurantiacus* the abdomen was distended when glued to the card on the pin giving the segmented appearance described by Kieffer, while in the lectotype of var. *mahensis* the abdomen is in normal distention appearing uniformly blackish. Because of the limited material a dissection was not made of this species.

Dasyhelea scotti (Kieffer), new combination
(Fig. 4h)

Culicoides scotti Kieffer, 1911:341 (♂, ♀; Seychelles; fig. ♀ wing).

Distribution.—Seychelles Islands. SEYCHELLES: Mahé, Beau Vallon, 27 April 1965, Tams and Nye, 3♀♀.

Types.—Described from 4♂♂, 47♀♀ from Mahé, Seychelles: 1♀, Cascade Estate, about 800 feet and over, collected by H. P. Thomasset and H. Scott, October 1908; 4♂♂, 40♀♀, Cascade Estate, about 800–1,500 feet, 1909; 6♀♀, Cascade, marshy ground near sea-level, 20 February 1909. We

have examined 2♂♂, 12♀♀ syntypes, from which we have selected a ♀ bearing the handwritten label "*Culicoides scotti*" as LECTOTYPE, which remains on a pin.

Note.—Two species of *Dasyhelea* were confused in the syntype series of *scotti*; in addition one of the males was a specimen of *Forcipomyia psilonota* (Kieffer). The lectotype is a very small species with dull blackish mesonotum and yellowish scutellum; the wings have abundant, long macrotrichia. We have not examined a male of *scotti*. One female syntype was slide-mounted and the spermatheca and genital sclerotization are shown in Fig. 4h. The spermatheca is moderately small and subspherical with a faintly sclerotized, slender neck. Wing length 0.69 mm; costal ratio 0.52. Six of the remaining pinned syntypes examined are *D. scotti*. The remainder of the syntypes that we examined are an undescribed species which is slightly larger than *scotti* and readily distinguished by its shining reddish-brown mesonotum. Part of the series was labeled in the collection as *scotti* var. *bipunctata* Kieffer, but apparently the name was never published and is now used to name the species.

Dasyhelea bipunctata Wirth and Messersmith, new species
(Fig. 4e, 4f, 4g)

Female Holotype.—Wing length 0.78 mm; breadth 0.36 mm; costal ratio 0.46. Antenna with lengths of segments in proportion of 30-24-24-24-23-23-23-25-26-26-26-26-36; antennal ratio 0.72, segments in more or less a continuous series; last segment without terminal stylet. Palpus not in condition for examination. Thorax brown; mesonotum shining; humeri with extensive yellowish markings; scutellum bright yellow. Legs yellowish, femora slightly darker in midportions. Wing whitish hyaline with well-developed microtrichia on membrane; radial veins infuscated; radial cells slitlike; macrotrichia long and moderately abundant, relatively stout, arranged in lines along veins. Halter white. Abdomen uniformly dark brown; genital sclerotization as in Fig. 4g, no apparent sclerotization anterior to gonopore, but sternal margin with low rounded lobes and bearing a row of 4 prominent bristly setae mesad with some smaller setae laterally. Spermatheca 1, very small, collapsed in holotype but apparently subspherical without neck; measuring 0.032 mm in diameter.

Male Allotype.—Antenna with plume extending up to segment 14; proximal flagellar segments unusually stout and fused; segments 12-14 binodose; 5 distal segments with lengths in proportion of 20-40-40-40-33. Genitalia (Fig. 4e): Ninth sternum with rounded mesal lobe continuous with arch of aedeagus; 9th tergum short and broad, tapering to conspicuous, slender apicolateral processes, caudal margin between them slightly convex. Aedeagus broader than high, with rounded basal arch and a pair of short, slender,

distomesal sclerotized processes. Parameres (Fig. 4f) asymmetrical, basal apodemes stout, distal process sinuate, very slender distally.

Distribution.—Seychelles Islands.

Types.—SEYCHELLES: Holotype, ♀, allotype, ♂, Mahé, Cascade Estate, 1908-1909, H. P. Thomasset and H. Scott (from the syntype series of *Culicoides scotti* Kieffer in the BMNH). Paratypes, 4 ♀♀, same data.

Dasyhelea tamsi Wirth and Messersmith, new species
(Fig. 4a, 4b, 4c, 4d)

Female Holotype.—Wing length 0.95 mm; breadth 0.42 mm. A small pollinose pale gray species; wing whitish with blackish stigma.

Head: Antenna (Fig. 4a) with lengths of segments in proportion of 28-20-20-20-20-20-21-21-21-22-22-33; antennal ratio 0.70; segments in a continuous series, moniliform proximally to slightly elongated on distal segments; surface of segments conspicuously reticulated; last segment without terminal stylet. Palpus (Fig. 4b) short and stout, lengths of segments in proportion of 28-24-18-18. Mesonotum with 3 broad dark brownish gray longitudinal vittae, humeri extensively pale yellowish gray. Scutellum yellowish. Legs whitish, knee spots blackish. Wing (Fig. 4c) milky whitish, the radial cells forming a dark stigma; costal ratio 0.49; veins forming radial cells greatly strengthened, the 1st radial cell obsolete, the 2nd short with small lumen; macrotrichia long and stout, very sparse, forming lines along the veins, more numerous on distal portion of wing. Halter grayish infuscated. Abdomen grayish brown. Genital sclerotization as in Fig. 4d, with slightly infuscated quadrate median lobe and a slender pair of oblique lateral arms. Spermatheca (Fig. 4d) single, ovoid, tapering to short stout neck; heavily sclerotized; measuring 0.060 by 0.045 mm.

Male.—Unknown.

Distribution.—Seychelles Islands.

Types.—SEYCHELLES: Holotype, ♀, Mahé, Anse aux Pins, 24 May 1972, D. H. Messersmith, at light (Type no. 70672, USNM). Paratypes, 20 ♀♀, Mahé, Beau Vallon, 27 April 1965, Tams and Nye.

Remarks.—This species is named for W. T. Tams of the British Museum (Natural History) in recognition of the important collection of Ceratopogonidae he and I. W. Nye made in the Seychelles for the British Museum. The whitish hyaline, nearly bare wings with dark stigma and the pale grayish pollinosity of the vittate mesonotum readily characterize the species.

Culicoides (Meijerehelea) leucostictus Kieffer

Culicoides leucostictus Kieffer, 1911:340 (♀; Seychelles; fig. wing); Edwards, 1922:163 (notes).

Culicoides praetermissus Carter, Ingram, and Macfie, 1920:240 (♂; Gold Coast; fig. wing); Clastrier, 1958:203 (redescribed; Senegal; figs.);

Khamala and Kettle, 1971:67 (notes; figs.; rec. Kenya, Uganda; syn.: *egypti*). NEW SYNONYMY.

Culicoides distinctipennis var. *pratermissus* Carter, Ingram, and Macfie; Fiedler, 1951:5 (new status, only a variety).

Culicoides distinctipennis var. *egypti* Macfie, 1924:66 (♀; Egypt); de Meillon, 1943:100 (var. of *distinctipennis*). NEW SYNONYMY.

Culicoides egypti Macfie; Macfie, 1943:154 (notes; status).

Distribution.—Widespread in Ethiopian Region. SEYCHELLES: Mahé, Reef Hotel Golf Course, 22 May 1972, D. H. Messersmith, black light, 1♂, 9♀♀. Mahé, Beau Vallon, March–April 1965, Tams and Nye, 16♂♂, 25♀♀. Mahé, Cascade, 10 March 1965, Tams and Nye, 1♂, 2♀♀.

Remarks.—This species closely resembles *C. distinctipennis* Austen except for the presence of a distinct, separate, small pale spot in cell R5 just behind and slightly distad of the pale spot lying at the end of the costa. The male genitalia of *leucostictus* differ from those of *distinctipennis* mainly in the greater length of the aedeagus and the longer midportion (stem) of the parameres. The Oriental species *histrion* Johanssen is also very similar to *leucostictus* but lacks a distal sensory tuft on antennal segment 15 and the male aedeagus is slender and truncated distally, lacking the caplike terminal papilla. The Oriental *C. guttifer* (de Meijere) differs in wing pattern and the spermatheca is shaped differently.

Culicoides (? Subgenus) *kusaiensis* Tokunaga

Culicoides kusaiensis Tokunaga, 1940:215 (♂, ♀; Caroline Is.; figs.); Lambrecht, 1970:1777 (notes, Seychelles records).

Distribution.—Micronesia, Malaya, Borneo, Seychelles Islands. SEYCHELLES: Mahé, Beau Vallon, 30 March, 18–27 April 1965, Tams and Nye, 4♂♂, 1♀. Mahé, Cascade, 10 March 1965, Tams and Nye, 1♂, 3♀♀.

Remarks.—Lambrecht (1970) reported the remarkable distribution of this species, ranging from the Caroline Islands through Malaysia to the Seychelles. Lambrecht took 2 females biting man on the beach at Grand Anse, 22 April 1969.

Alluaudomyia marmorata (Carter, Ingram and Macfie)

Prionognathus marmoratus Carter, Ingram and Macfie, 1921:312 (♂, ♀; Gold Coast; figs.).

Alluaudomyia marmorata (Carter, Ingram, and Macfie); de Meillon, 1939:8 (combination; in key).

Distribution.—Widespread in Ethiopian Region. SEYCHELLES: Mahé, Beau Vallon, 25 April 1965, Tams and Nye, 3♂♂.

Stilobezzia areolaris (Kieffer)

Sphaeromyias areolaris Kieffer, 1911:345 (♀; Seychelles; fig. wing, tarsus).
Stilobezzia areolaris (Kieffer); Das Gupta and Wirth, 1968:138 (combination).

Distribution.—Seychelles Islands. SEYCHELLES: No locality, February–March 1965, Tams and Nye, 7♂♂, 1♀.

List of the Known Ceratopogonidae of the Seychelles

Subfamily Leptoconopinae

Leptoconops (*Styloconops*) *spinosifrons* (Carter) Lambrecht, 1970

Subfamily Forcipomyiinae

Atrichopogon lampronotus (Kieffer) Kieffer, 1911
Atrichopogon trichotomma (Kieffer) Kieffer, 1911
Forcipomyia (*Euprojoannisia*) *psilonota* (Kieffer) Kieffer, 1911
Forcipomyia (*Forcipomyia*) *biannulata* (Ingram and Macfie) New Record
Forcipomyia (*Lasiohelea*) *mahensis* (Kieffer) Kieffer, 1911
Forcipomyia (*Lepidohelea*) *chrysolopha* (Kieffer) Kieffer, 1911
Forcipomyia (*Microhelea*) *fuliginosa* (Meigen) New Record
Forcipomyia (*Schizoforcipomyia*) *borbonica* (Clastrier) New Record
Forcipomyia (*Thyridomyia*) *falcinellus* (Kieffer) Kieffer 1911

Subfamily Dasyheleinae

Dasyhelea aurantiaca (Kieffer) Kieffer 1911
Dasyhelea scotti (Kieffer) Kieffer 1911
Dasyhelea seychellensis (Kieffer) Kieffer 1911
Dasyhelea tamsi, new species New Record
Dasyhelea bipunctata, new species New Record

Subfamily Ceratopogoninae

Culicoides kusaiensis Tokunaga Lambrecht, 1970
Culicoides leucostictus Kieffer Kieffer, 1911
Alluaudomyia marmorata (Carter, Ingram and Macfie) New Record
Monohelea pulchripennis (Kieffer) Kieffer, 1911
Stilobezzia areolaris (Kieffer) Kieffer, 1911
Serromyia festiva Kieffer Kieffer, 1911
Hebetula hexacantha (Kieffer) Kieffer, 1911

<i>Nilobezzia scotti</i> (Kieffer)	Kieffer, 1911
<i>Bezzia ornatissima</i> (Kieffer)	Kieffer, 1911
<i>Bezzia rufipes</i> (Kieffer)	Kieffer, 1911
<i>Bezzia seychelleana</i> (Kieffer)	Kieffer, 1911

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Footnote

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